DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-002860
Date Inspected: 04-Jun-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Changxing Island

CWI Name:	See below	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☐ Yes ☑ No ☐ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Skin plates

Summary of Items Observed:

The name of ABF Certified Welding Inspector (CWI) are Miss. Xie Yan, Mr. Wang Cheng Jun, Mr. Yang Yi Heng, and Mr. Kong Xian Hui.

Heat straightening on skin plate (Tower Bay#1 and Bay#2) Caltrans Quality Assurance Inspector (QAI) observed Zhenhua Port Machinery Co (ZPMC) heat straightening operators performed heat straightening with ZPMC Heat Straightening Report (HSR) on plate numbered P327A to P39 (Bay#1), P1304, P130, P110 (Bay#2) The heating temperature is maximum 650 C (1200 F) and cool in still air. All the plates have been monitored and recorded and inspected by ZPMC QC required within from 0.5mm to 1mm off set after heat straightening to cool to ambient temperature. Based on Caltrans QAI observation, no discrepancies were noted.

Submerged Arc Welding (SAW) process on longitudinal stiffener plate and skin plate (Tower Bay#1 and Bay#2): Caltrans QAI observed ZPMC welding operators performed semi-automatic SAW on the splice weld of ASTM 709 345 longitudinal stiffener plate numbered P326 to P328 with 90mm wall thickness, weld# ESD1-SA107E/J-2A.(Bay#2), longitudinal stiffener plate numbered P324A to P328 with 90mm wall thickness, weld# ESD1-SA107E/J-1A.(Bay#2), skin plate numbered P793 to SA216 to P1303 to P789 to P91 to P609 with 45mm to 65mm wall thickness, weld# ESD1-SA216 A/K-14B.(Bay#2), skin plate P321 to SA180 with 65mm wall thickness weld# SSD1-SA180B/E-24B, SSD1-SA180B/E-2, SSD1-SA180B/E-23B (Bay#1), skin plate numbered P210, P211 and P197 with 45mm wall thickness, weld# SSD1-SA179B/E-11A (Bay#1). The weld designed is a double -V-groove with welding conducted in the in flat position (1G) with proper 4.8mm diameter wire feed electrode JW3 and flux/J1-B, made by China Company and completed with approximate five pass. The parameters used for SAW welding of splice weld was conducted in accordance with Caltrans approved WPS-B-T-2221-B-U3. The semi-automatic SAW was monitored and recorded by ZPMC QC and ABF Certified Welding Inspector (CWI). Based on Caltrans QAI observations, no discrepancies were noted.

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Ultrasonic Testing (UT) on repair butt joint weld of skin plate (Tower Bay#1 and Bay#2): Caltrans QA observed Zhenhua Port Machinery Co (ZPMC) two NDT level II technician performed straight beam and angle beam UT on splice welds of skin plate. The weld numbered # SSD1-SA159E/J-23B, SSD1-SA159G/J-23B, SSD1-SA159E/J-12B, SSD1-SA159G/J-13B, (Bay#1) and EDD1-SA107A/J-19A (Bay#2) The metrical of skin plate is ASTM 709 345 wall thickness from 45mm to 65mm and the test surface has been cleaned. First processes, an 250mm range reflection has calibrated on “A scan” digital display instrument Parametric model Epoch XT was used, a straight beam search unit, is a 25mm diameter x 2.5 MHz single transducer applied a source of compression waves, and penetrated into both side head affected zone of splice weld for laminar discontinuities scanning. Second processes, an angle beam search unit, are an angle wedge 45, 60 and 70 degrees applied a source of shear waves, and passes through base weld for the detection of discontinuities. The distance and sensitivity of straight beam and angle beam are calibrated with the International Institute of welding (IIW) ultrasonic reference block. All the test welds have been accepted by ZPMC technicians. The SWUT test operated and recorded by ZPMC technicians appeared to be in general compliance with requirements of AWS Structural Welding Code D1. 5 2002.

Summary of Conversations:

As Note within the report above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Wahbeh Mazen (818)292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Pau,Wai	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer